

APPROVED	FIG.	
BY	CLASS	SUBCLASS
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Serial No.: 09/718,295
Filing Date: November 21, 2000
Inventors: Rui Mei
Docket No.: 3359/US

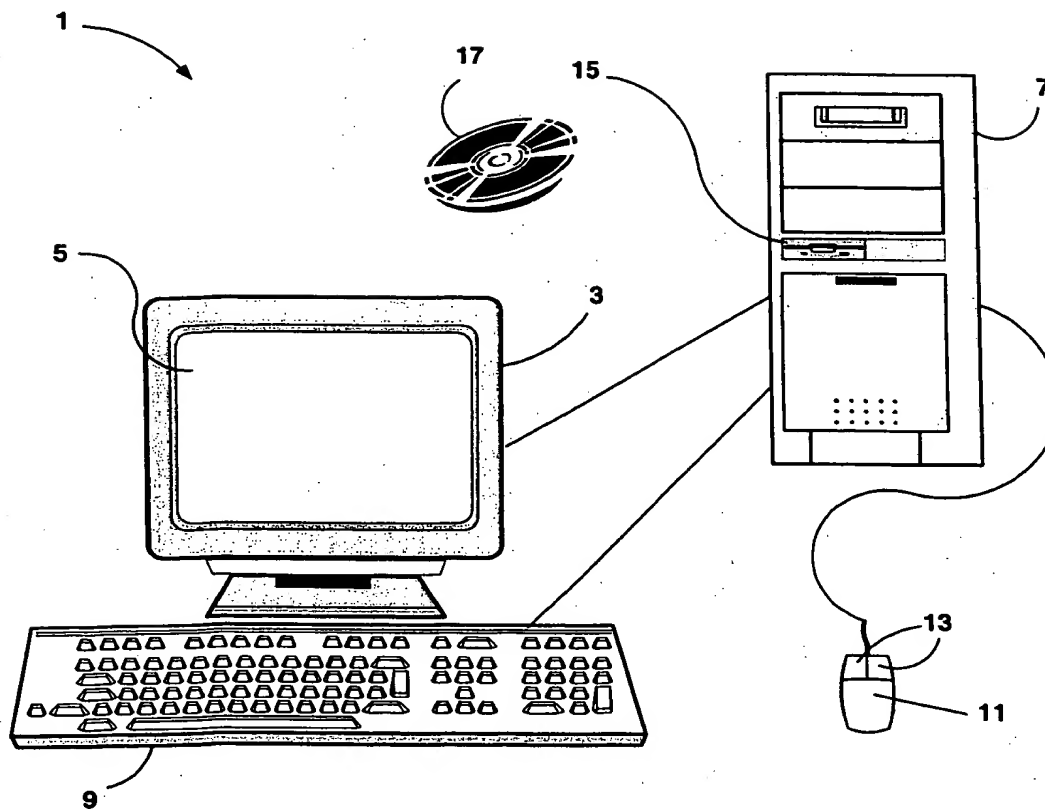


Figure 1

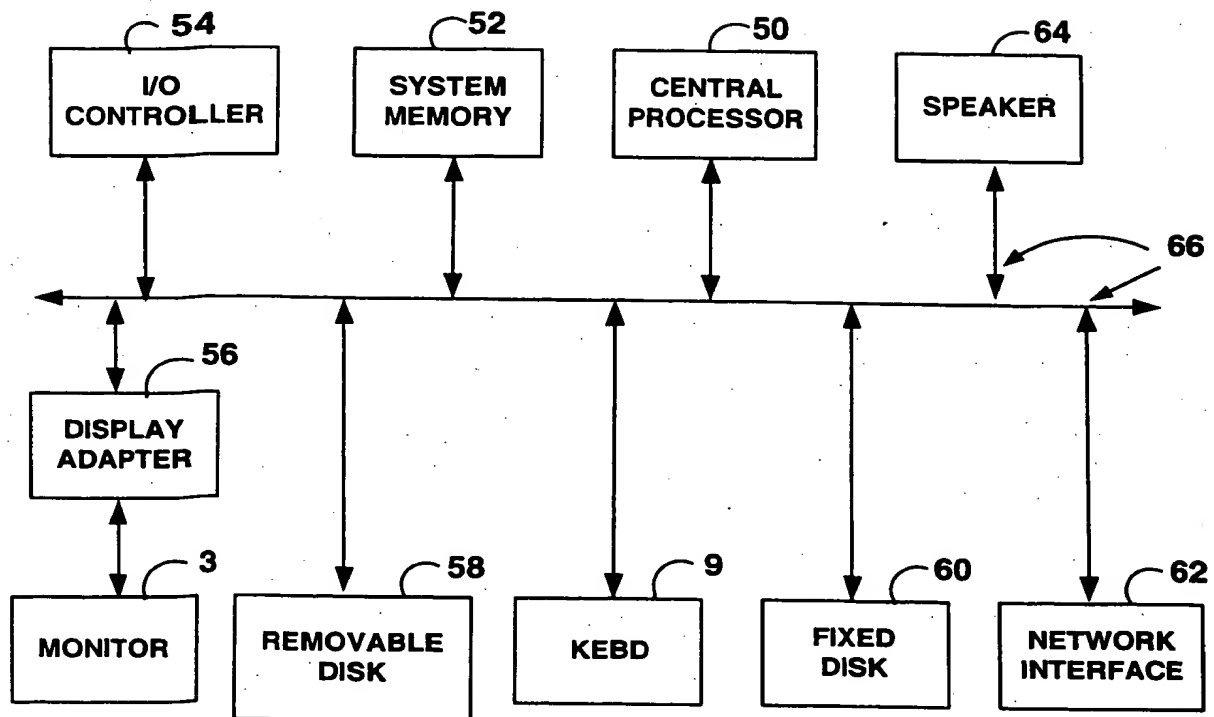
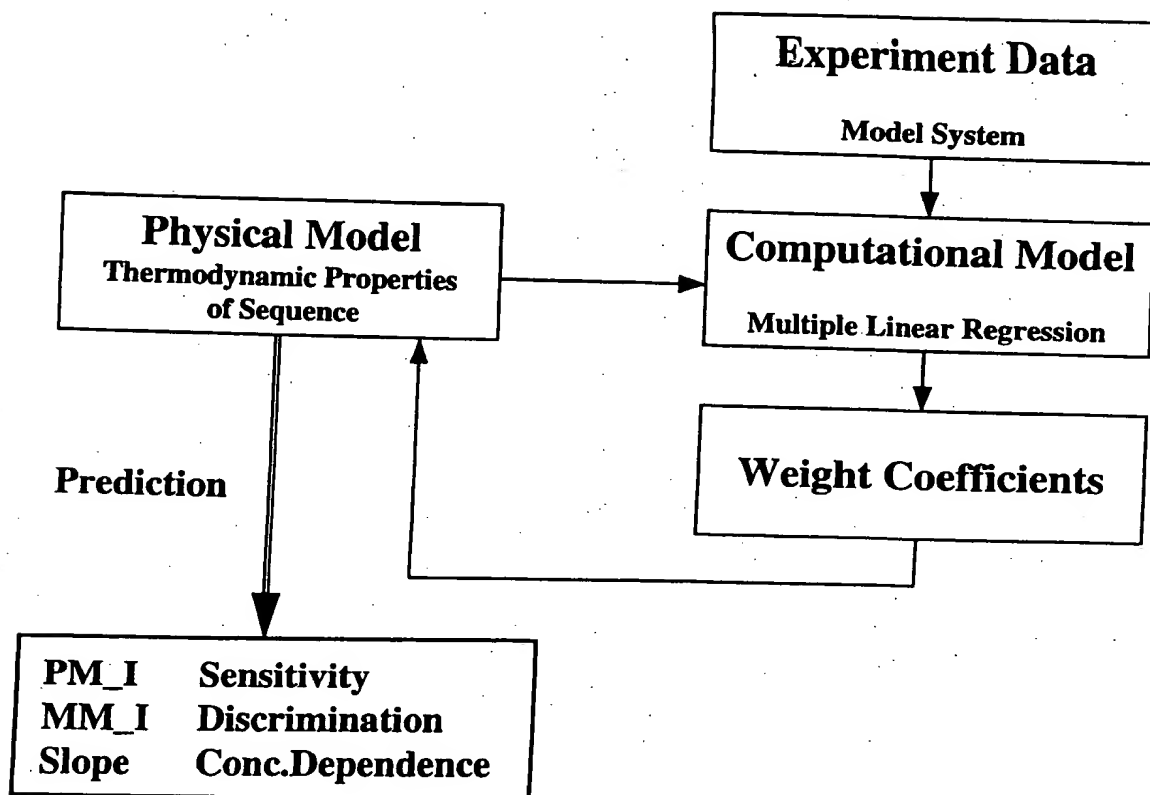


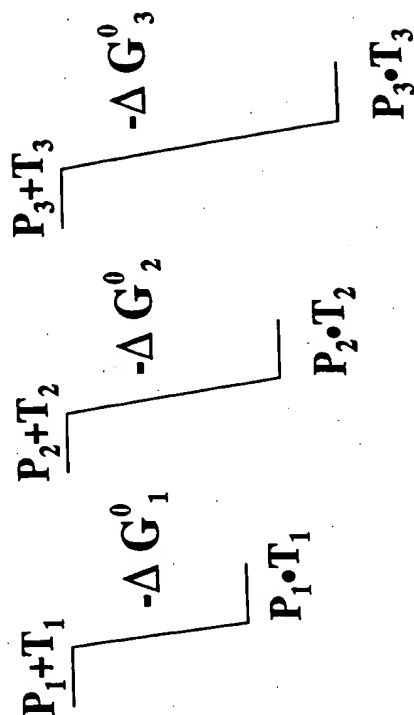
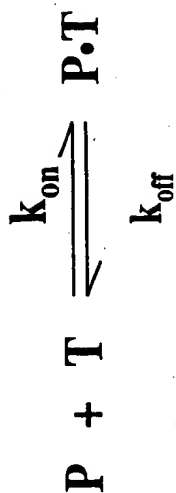
Figure 2

Figure 3 **Predicting Probe Quality**



Basic Physical Model

Figure 4



APPROVED	FIG.	
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Define Each Nucleotide at Each position

Figure 5

Example : GTCA

*Using A as ref. 3 base/position

i	Position	Base	S_i
1	1	C	0
2	1	G	1
3	1	T	0
(1 st position is G)			
4	2	C	0
5	2	G	0
6	2	T	1
(2 nd position is T)			
7	3	C	1
8	3	G	0
9	3	T	0
(3 rd position is C)			
10	4	C	0
11	4	G	0
12	4	T	0
(4 th position is A as reference)			

Relative ΔG vs. Base Position

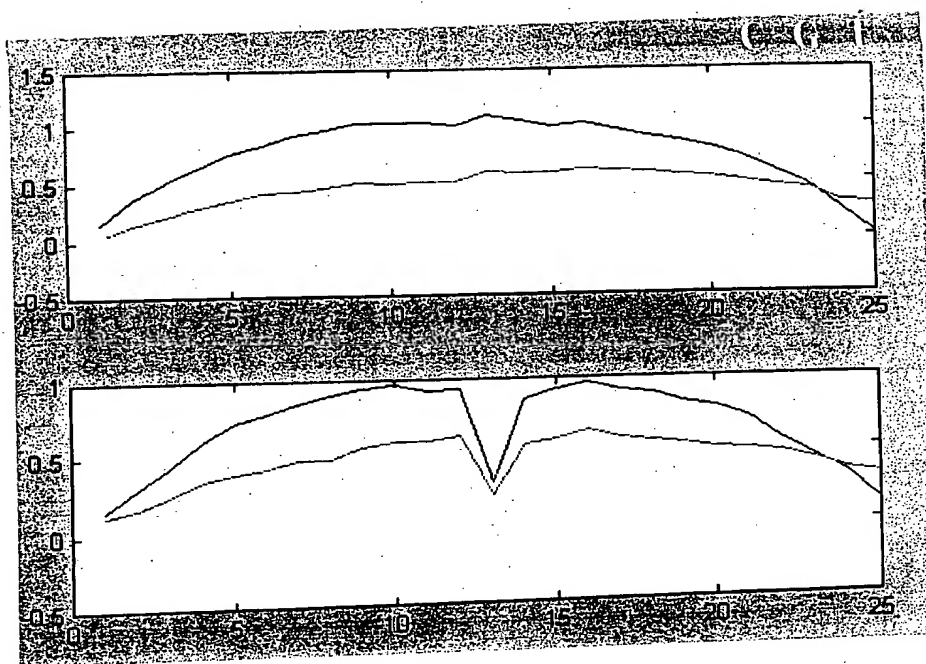


Figure 6A

PM

Figure 6B

MM

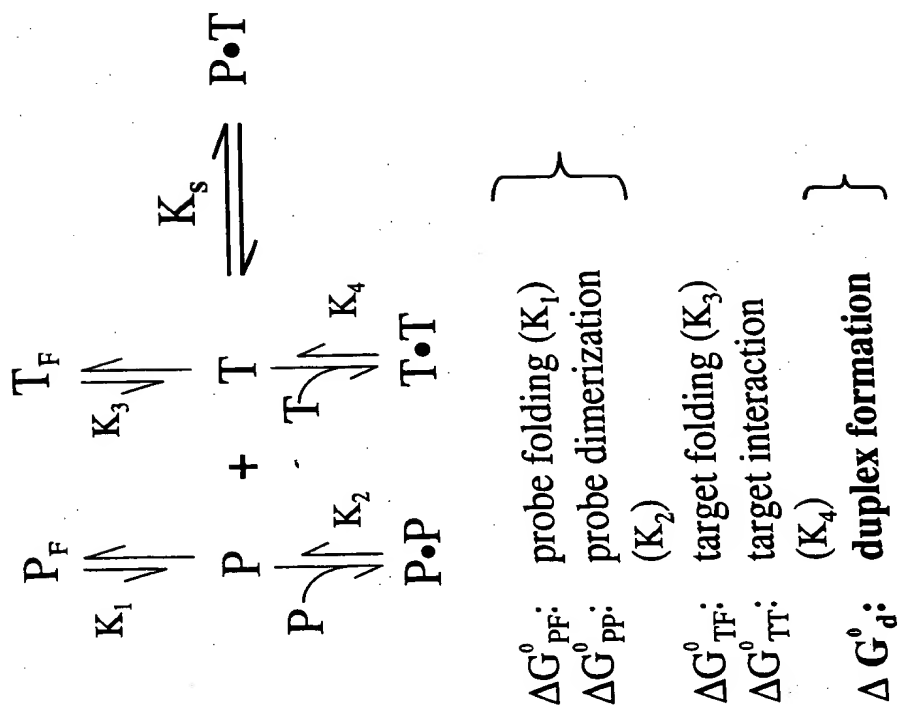
Base Position in Probe Sequence

APPROVED	E. FIG.	
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Overall Reaction

Figure 7

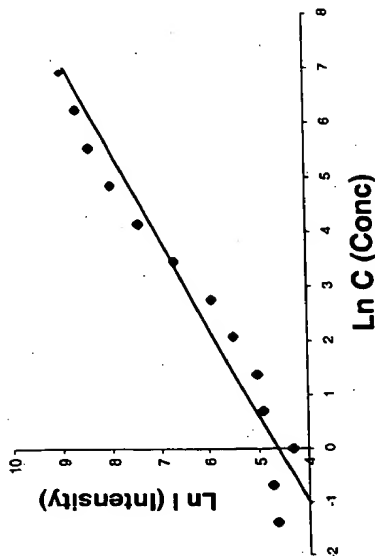


APPROVED	D.E. FIG.	
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Concentration Dependence: Slope

Figure 8



$$\ln I = S \cdot \ln C + \ln K_{app}$$

$$I = K_{app} \cdot C^S$$

I: Intensity

K_{app} : Apparent Affinity Constant

C: Concentration

S: Empirical Value ($0 < S < 1$)

APPROVED	O.G. FIG.	
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Relationship between Kapp vs. S - Prediction of Probe Saturation

Figure 9B

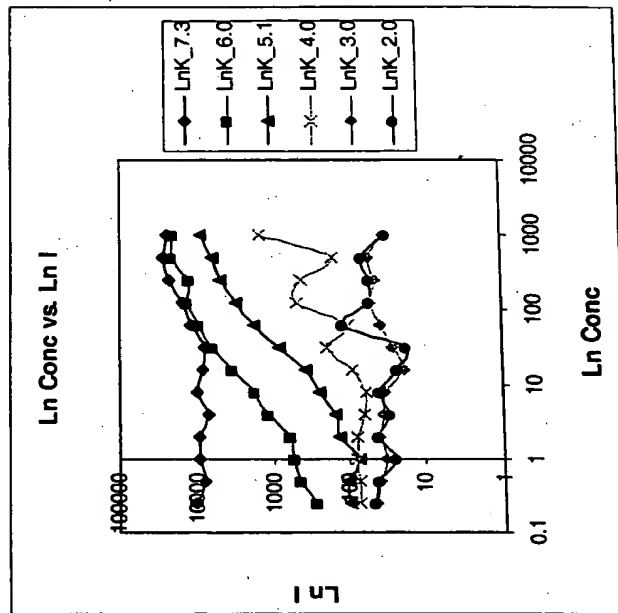
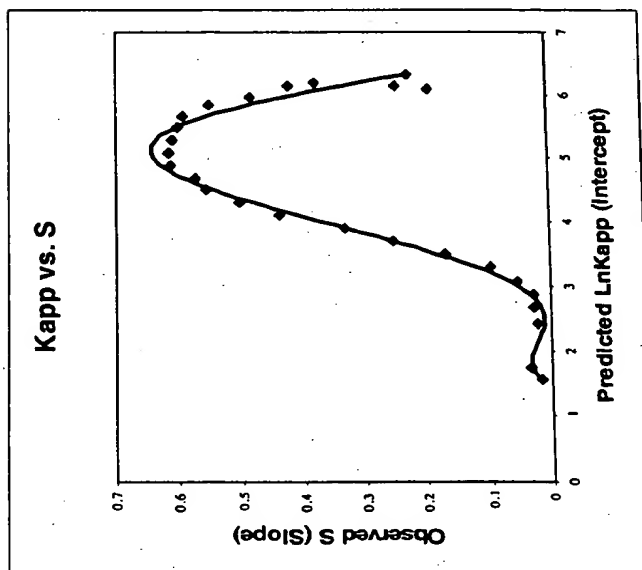


Figure 9A



APPROVED	D.G. FIG.	
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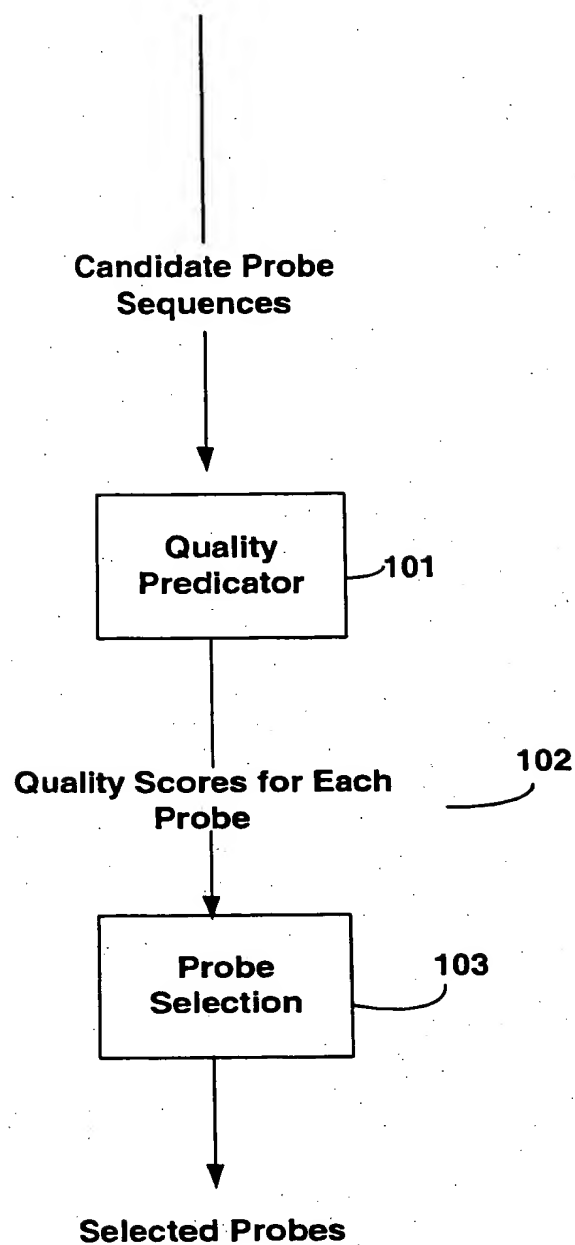


Figure 10

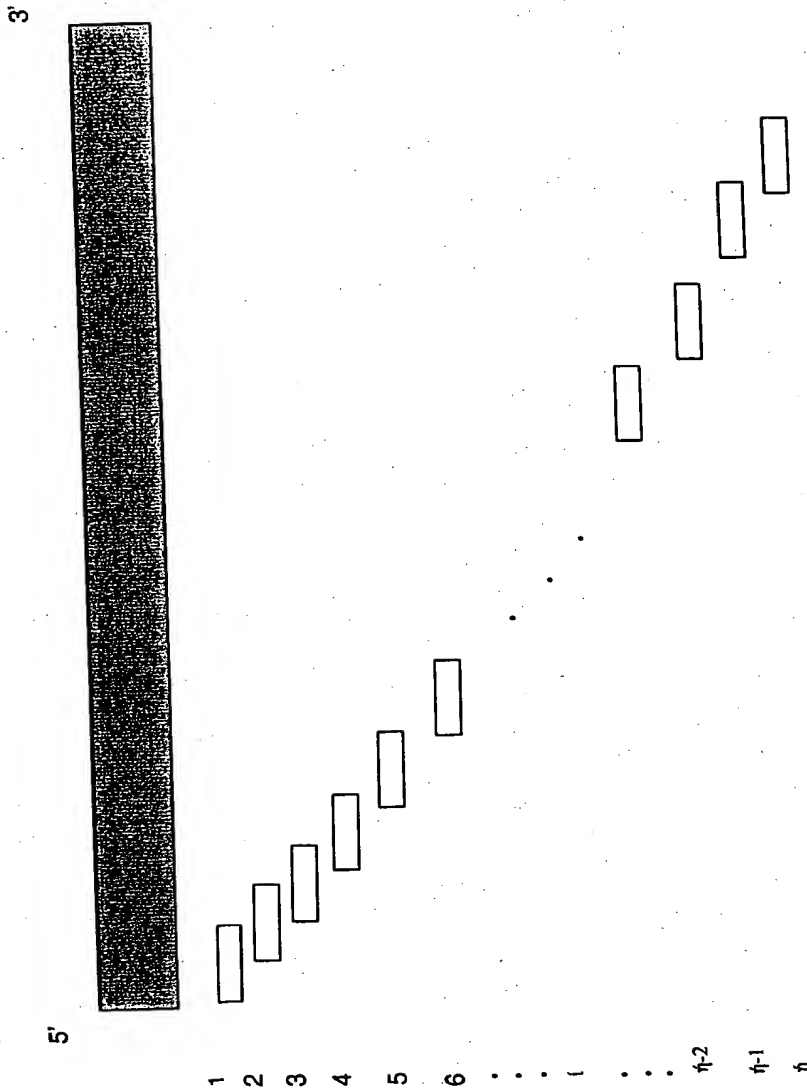


FIGURE 11

APPROVED	O.G. FIG.	
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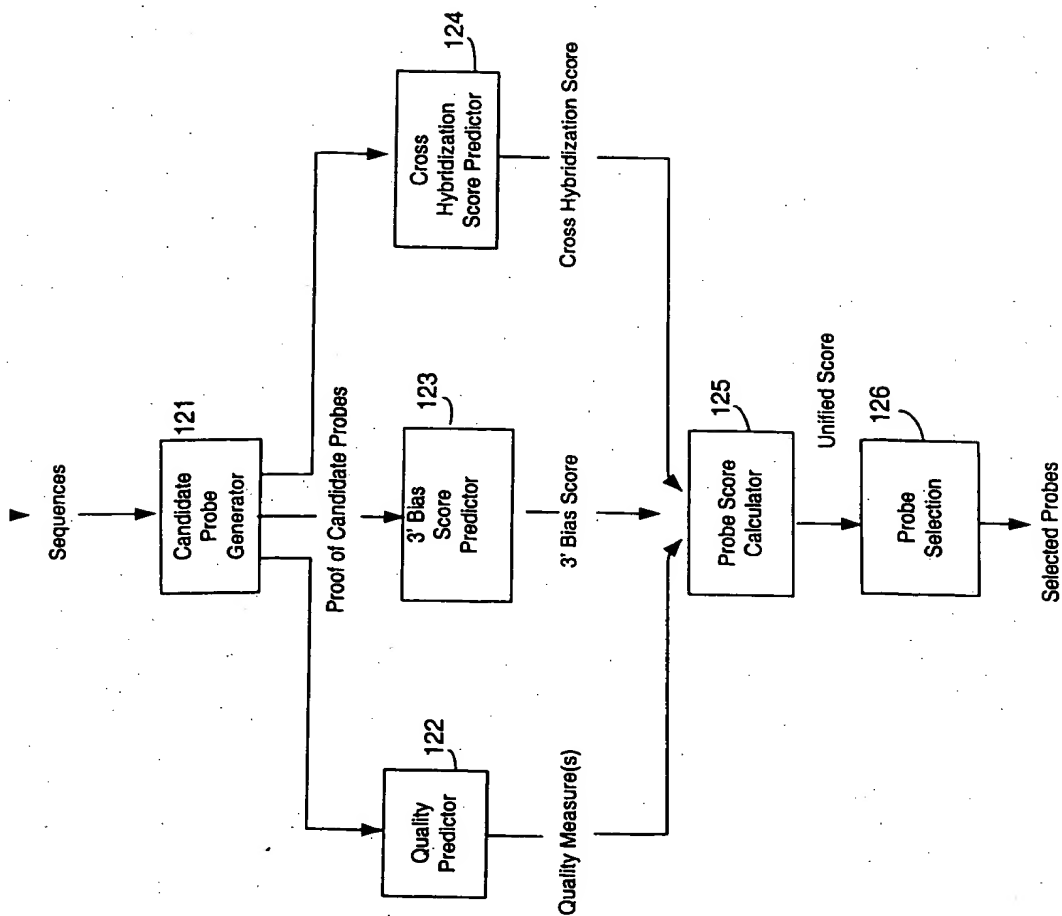
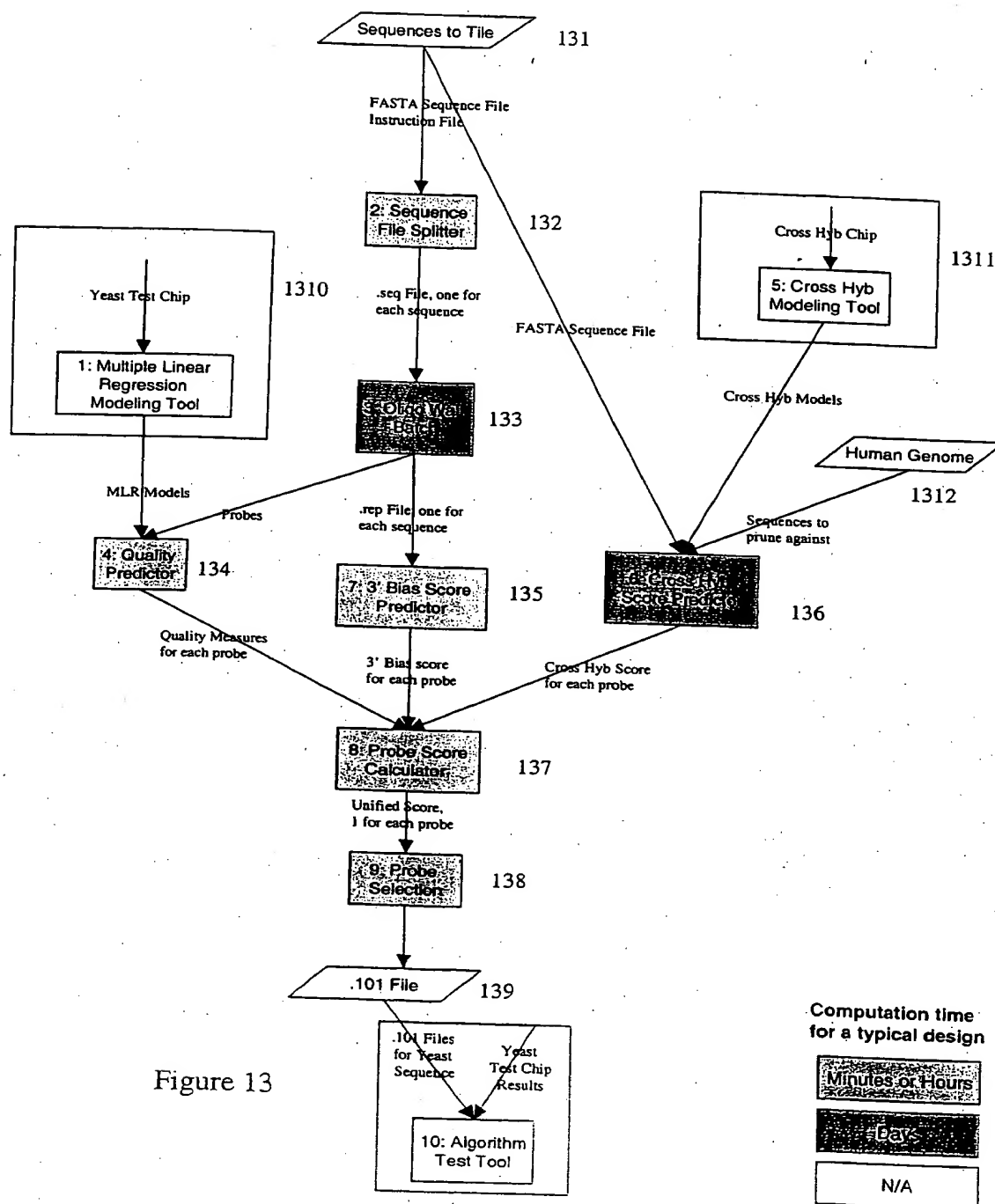


Figure 12



APPROVED	O.G. FIG.	
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Latin Square MLR

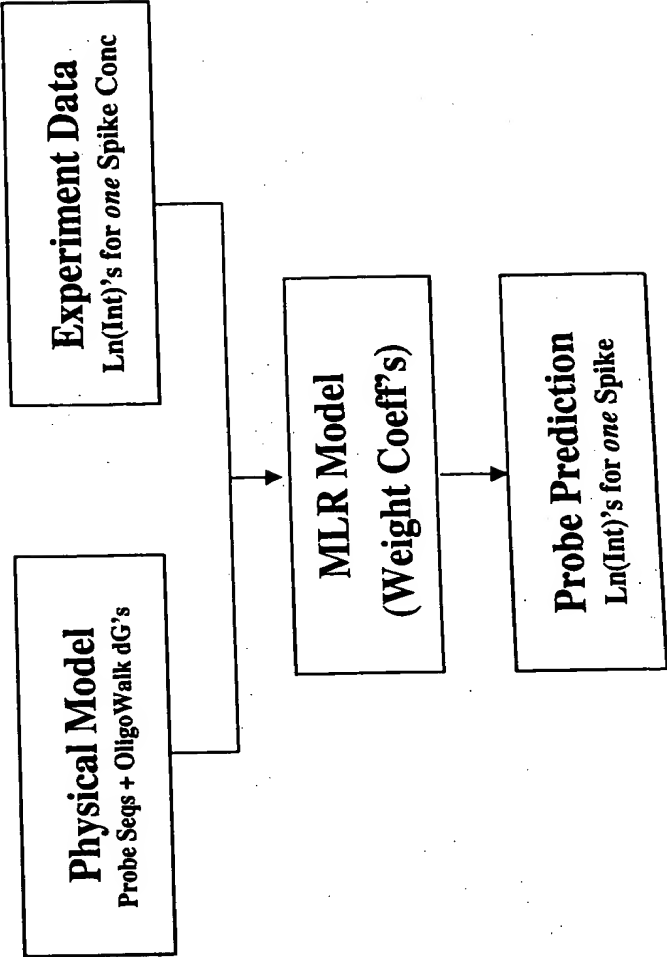


Figure 14

112 Yeast Clones Randomly Divided into 14 Groups

Groups

1	2	3	4	5	6	7	8	9	10	11	12	13	14
YNL259C	YNL037C	YAL038W	YHR044C	YMR127C	YLR377C	YOL064C	YPL209C	YIR034C	YJR148W	YEL046C	YGR185C	YBR166C	YOL155C
YEL003W	YDR113C	YLR083C	YJL117W	YNL290W	YOL086C	YJR094C	YEL028C	YMR276W	YNL060W	YGR072W	YGL181W	YJL155C	YOL227C
YDL235C	YGL105W	YLL043W	YMR116C	YMR228W	YJR019C	YIR026C	YGR040W	YMR294W	YDL188C	YMR203W	YGL213C	YEL036C	YOL227W
YEL024W	YDR498C	YBR212W	YPL111W	YPR057W	YOR085W	YLR055W	YPR065W	YPL001W	YGR109C	YGR112W	YOL136C	YJL014W	YMR108W
YEL018W	YDL029W	YNL015W	YCL065W	YMR035C	YDL226C	YMR270C	YPR191W	YMR035C	YOL043C	YMR208W	YEL037C	YJL110C	YPL043W
YER161C	YKL081W	YCL007W	YFR025C	YCL032W	YBL016W	YBR018C	YMR139W	YNL307C	YLR291C	YIL136W	YHL022C	YJL014C	YLR153C
YKL193C	YFR053C	YML098W	YLR354C	YIL154C	YBL068W	YBR057C	YPR035W	YGL148W	YDR088C	YOR099W	YHL014C	YJL155W	YPR074C
YPR129W	YFL018C	YOL143C	YPL069C	YBR034C	YMR025W	YER118C	YNL005C	YGL155W	YMR015W	YOR176W	YKR061W		YPL089C

Figure 15

APPROVED	O.G. FIG.	
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Latin Square Experiment

Groups →

Exp →

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024
2	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	0
3	0.5	1	2	4	8	16	32	64	128	256	512	1024	0	0.25
4	1	2	4	8	16	32	64	128	256	512	1024	0	0.25	0.5
5	2	4	8	16	32	64	128	256	512	1024	0	0.25	0.5	1
6	4	8	16	32	64	128	256	512	1024	0	0.25	0.5	1	2
7	8	16	32	64	128	256	512	1024	0	0.25	0.5	1	2	4
8	16	32	64	128	256	512	1024	0	0.25	0.5	1	2	4	8
9	32	64	128	256	512	1024	0	0.25	0.5	1	2	4	8	16
10	64	128	256	512	1024	0	0.25	0.5	1	2	4	8	16	32
11	128	256	512	1024	0	0.25	0.5	1	2	4	8	16	32	64
12	256	512	1024	0	0.25	0.5	1	2	4	8	16	32	64	128
13	512	1024	0	0.25	0.5	1	2	4	8	16	32	64	128	256
14	1024	0	0.25	0.5	1	2	4	8	16	32	64	128	256	512

Figure 16

APPROVED BY	O.G. FIG.	
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Latin Square Data Sets from Yeast_Test_Hyb Chips

Figure 17

Lot 1 (9912072)			
No Background:	3 Scans	14 chips	(530, PMT=701; 570, PMT=701; 570, PMT=600)
+ Background:	3 Scans	14 chips	(530, PMT=701; 570, PMT=701; 570, PMT=600)
Lot 2 (9910426)			
No Background:	1 Scan	14 chips	(570, PMT=600)
+ Background:	1 Scan	14 chips	(570, PMT=600)
Lot 3 (9910427)			
+ Background:	1 Scan	14 chips	(570, PMT=526)
No Background_Rep1:	1 Scan	14 chips	(570, PMT=526)
No Background_Rep2:	1 Scan	14 chips	(570, PMT=526)
Lot 4 (9913514)			
No Background:	1 Scan	14 chips	(570, PMT=526)
+ Background:	1 Scan	14 chips	(570, PMT=526)
Lot 5 (9914059)			
+ Background_Rep1:	1 Scan	14 chips	(570, PMT=526)
+ Background_Rep2:	1 Scan	14 chips	(570, PMT=526)
No Background:	1 Scan	14 chips	(570, PMT=526)

APPROVED	C.E. FIG.	
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Bootstrapping

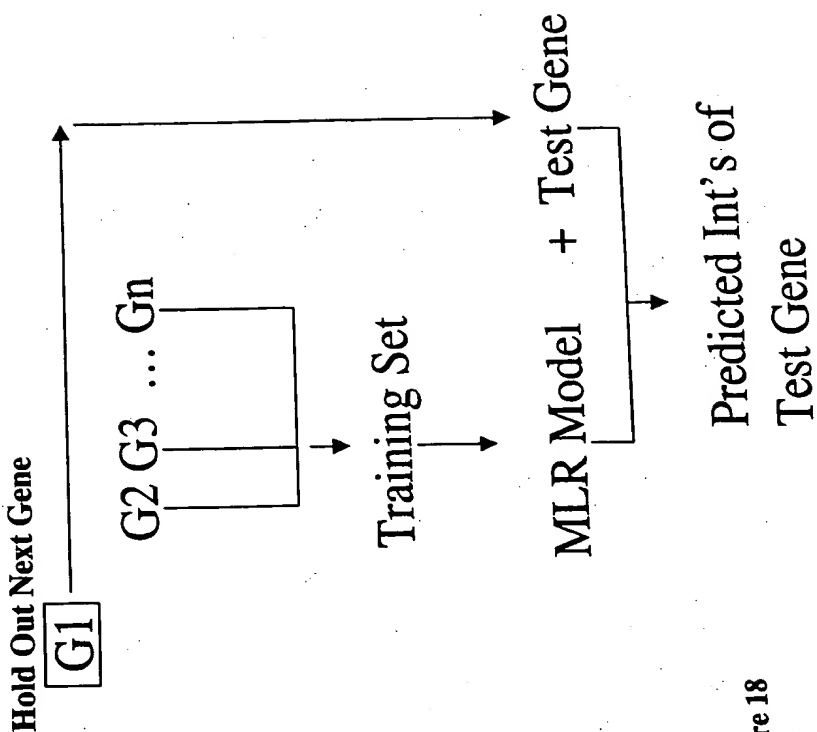


Figure 18

APPROVED	C.G. FIG.	
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YDR113C

Figure 19A

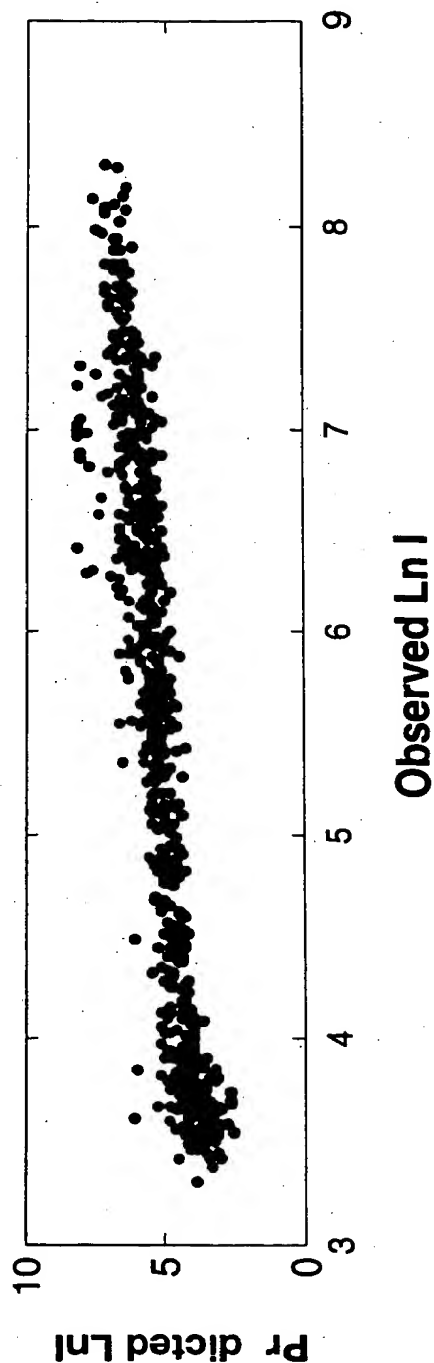
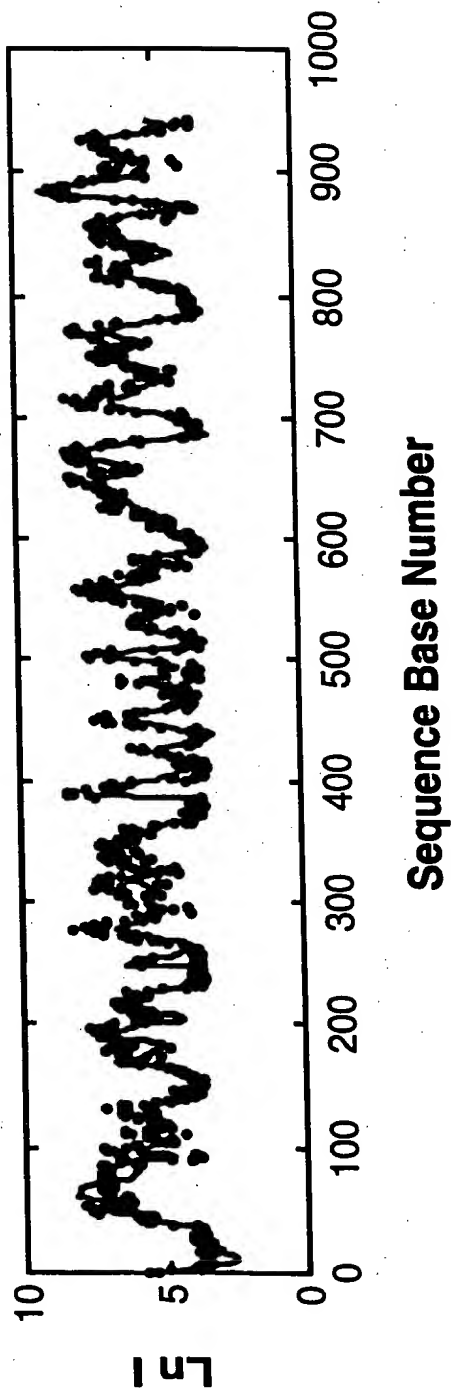


Figure 19B



APPROVED	D.E. FIG.	
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YGR109C

Figure 20A

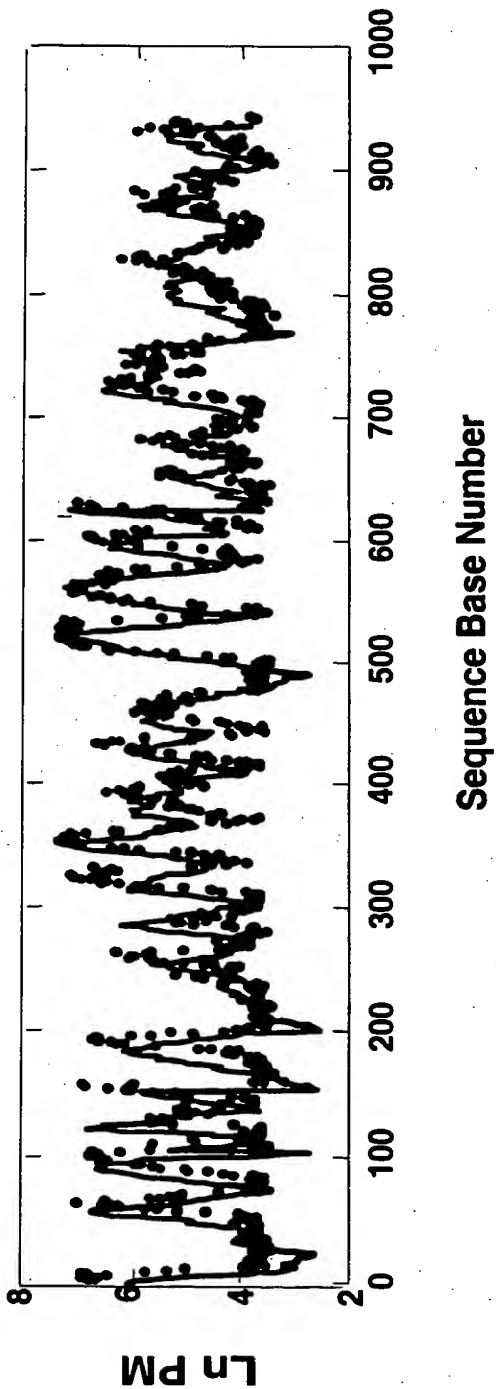
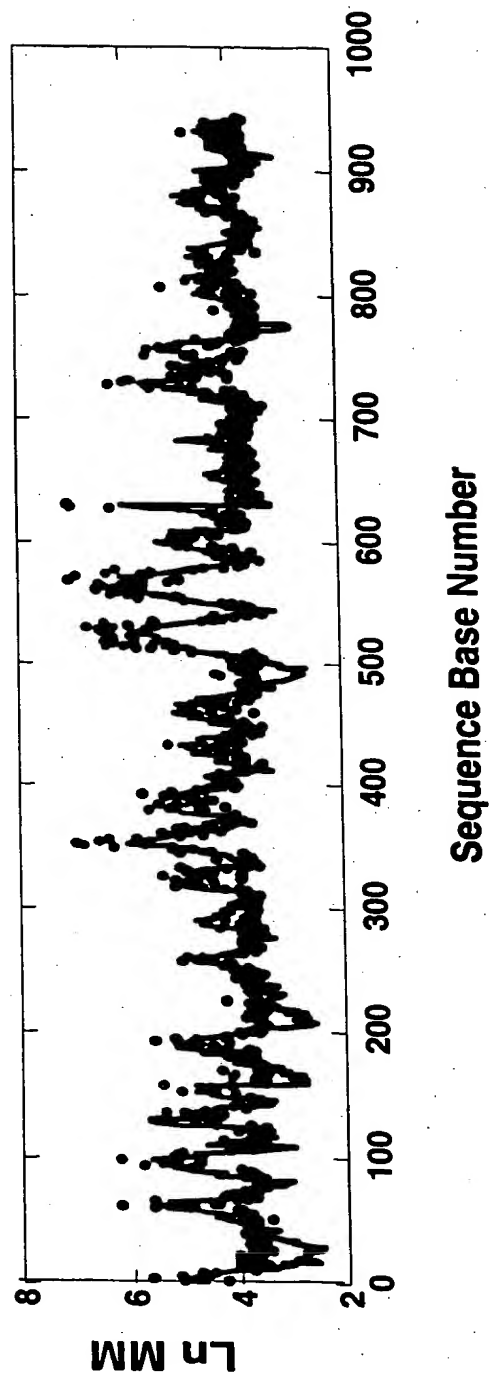


Figure 20B



Ln(Int) at Different Spike Concentrations

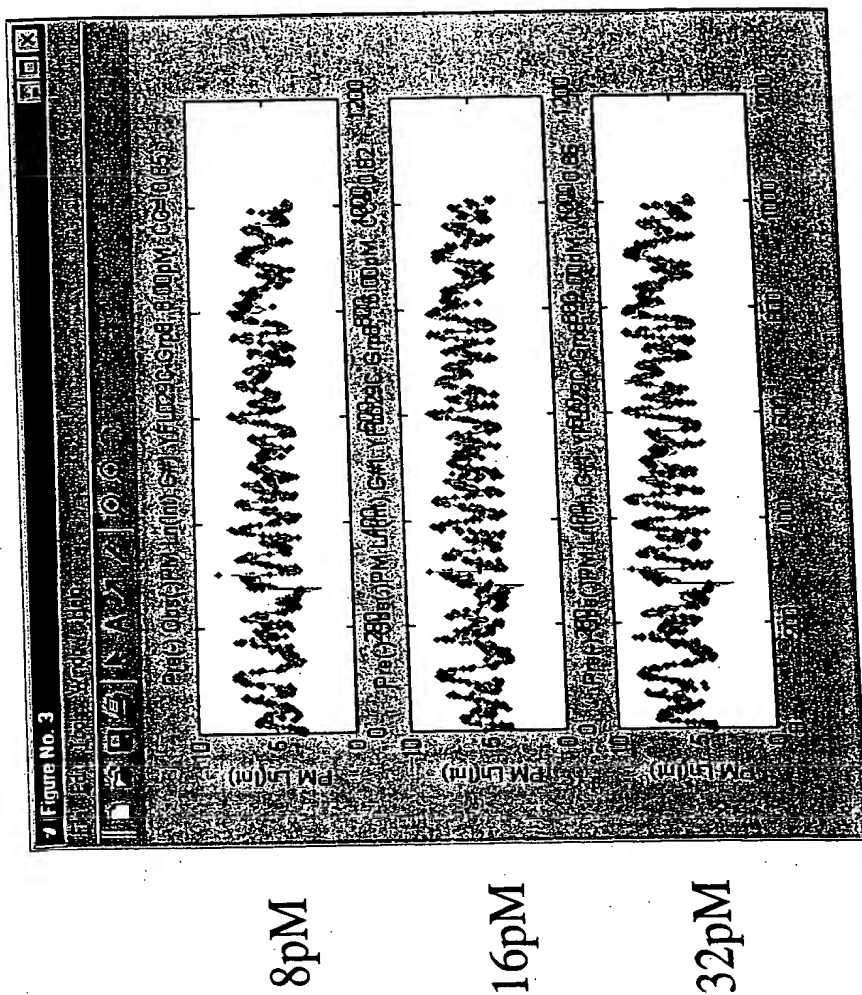


Figure 21

Correlation between Predicted & Observed $\ln(\text{Int})$'s

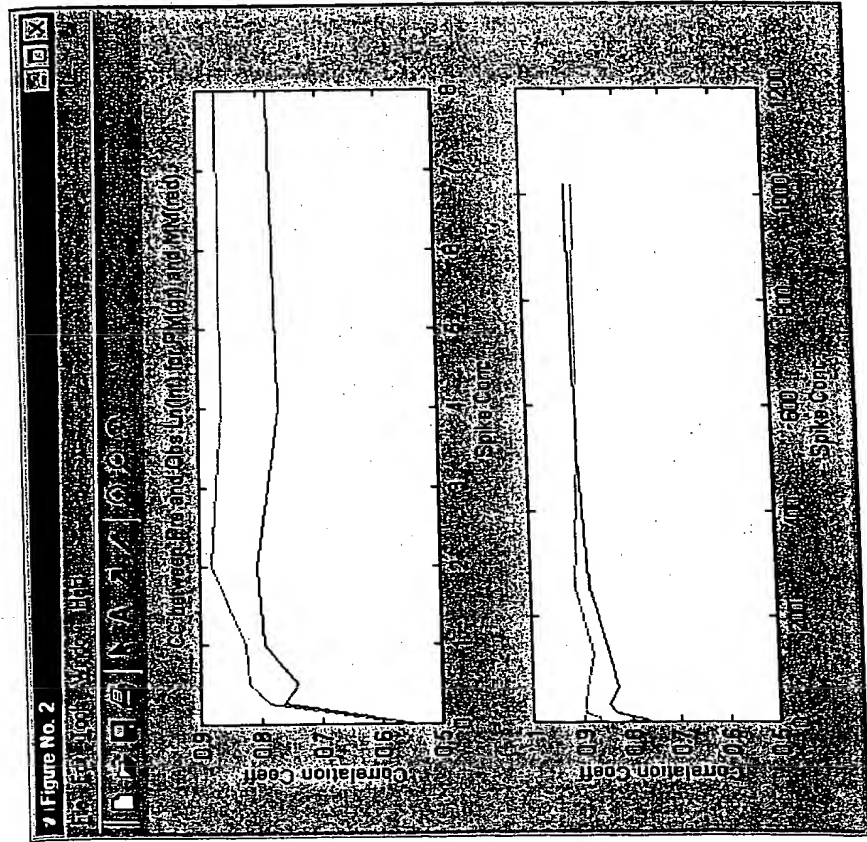


Figure 22

APPROVED	C.G. FIG.	
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Negative Control: Gene in Wrong Orientation

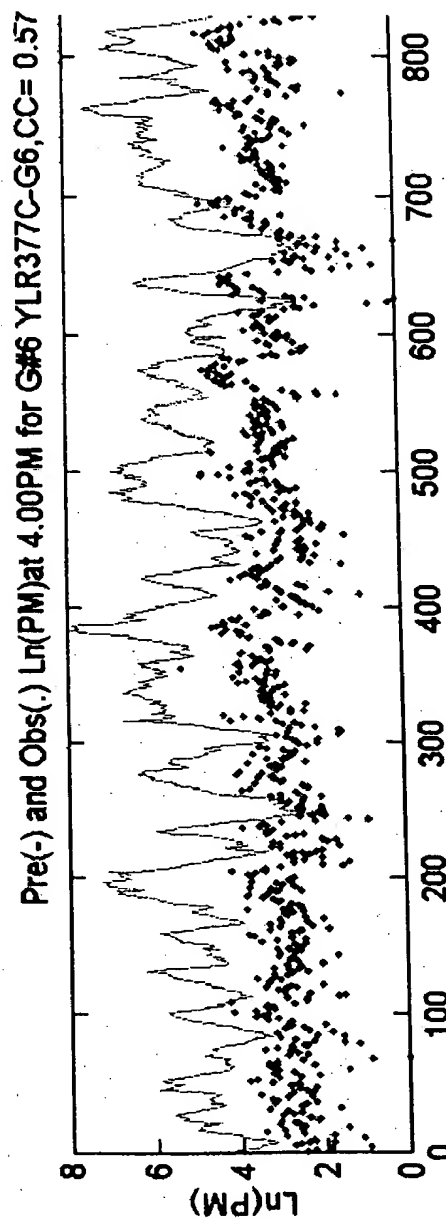
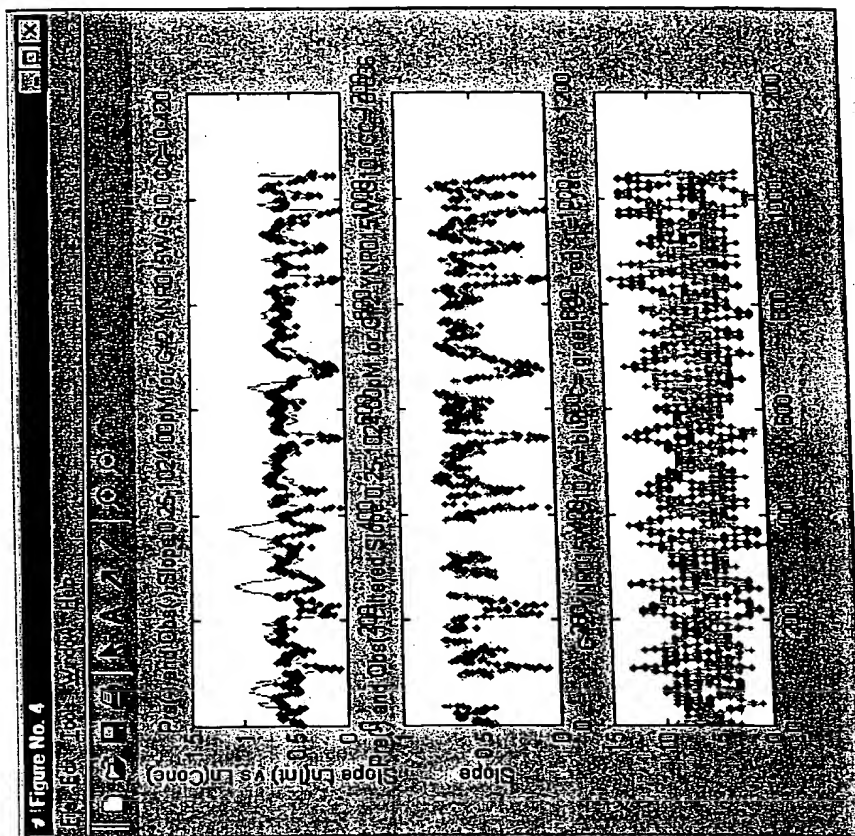


Figure 23

Predicted Observed Slopes

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CC=0.42

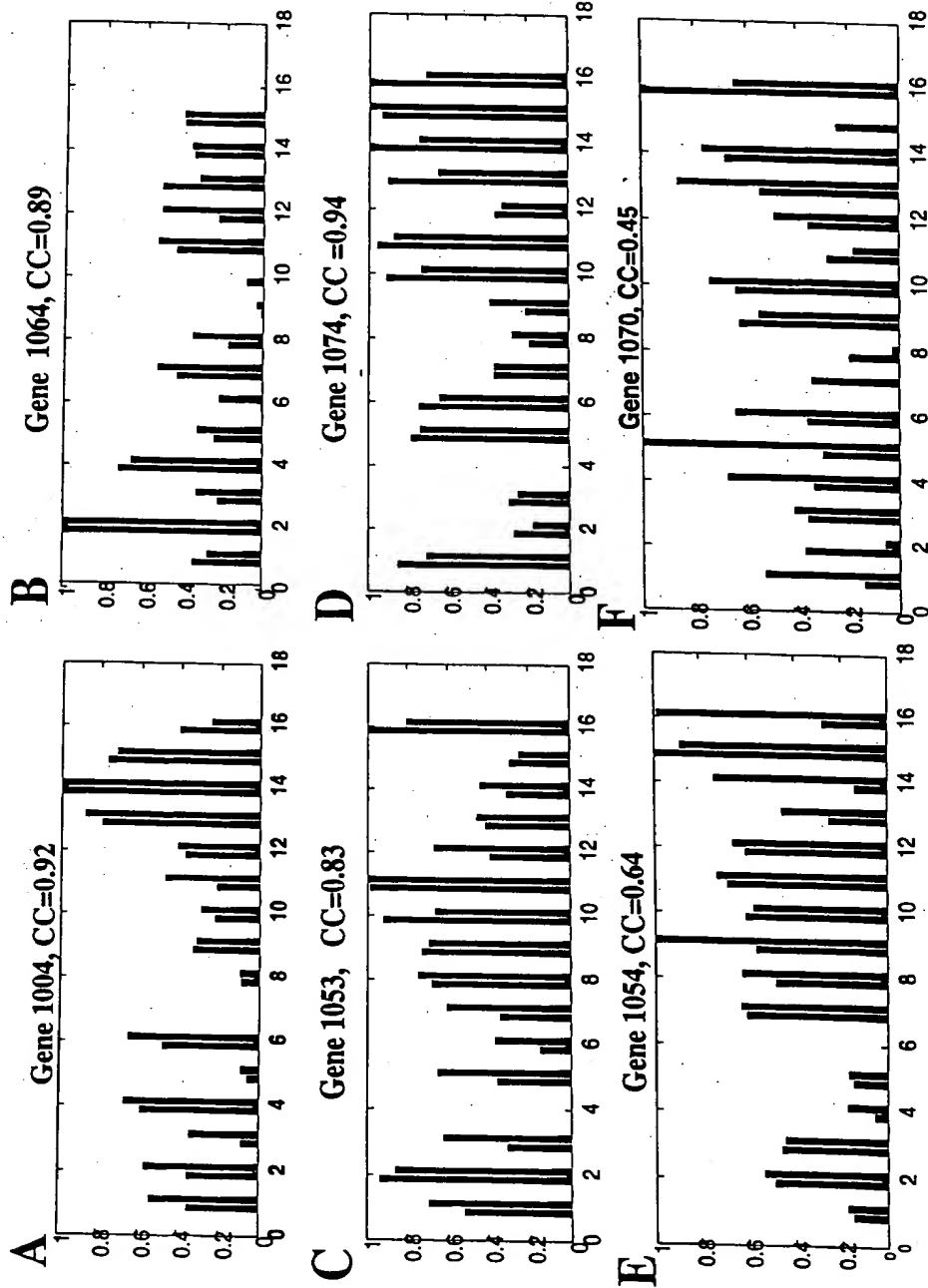
CC=0.84

Figure 24

From Yeast to Human

Using Parameters from Yeast Model System to Predict Human_U95A

Figure 25



old

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Predictions for Hu_U95a Probe Sets

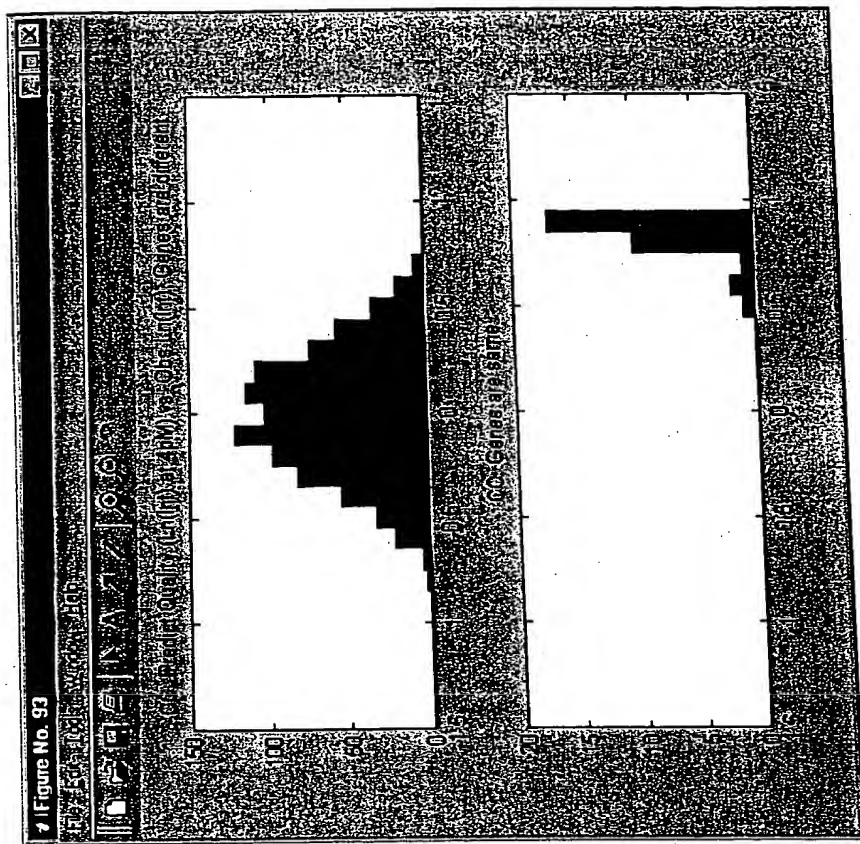


Figure 26

APPROVED	O.G. FIG.	
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Sixteen Probes Selected By Dynamic Programming Algorithm

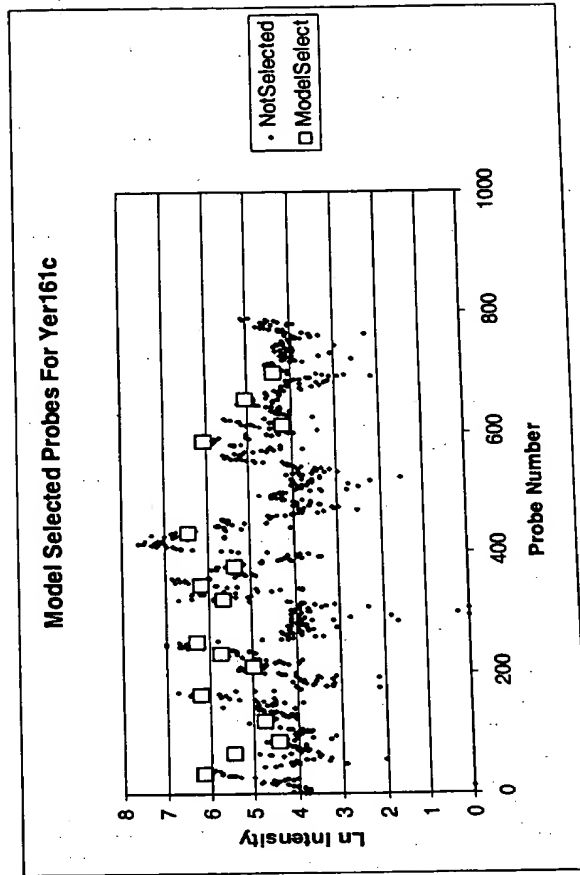


Figure 27

APPROVED	D.G. FIG.	
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Comparison of AveDiff Values of all Yeast Test Chip Genes: New vs Random vs Rules Selection

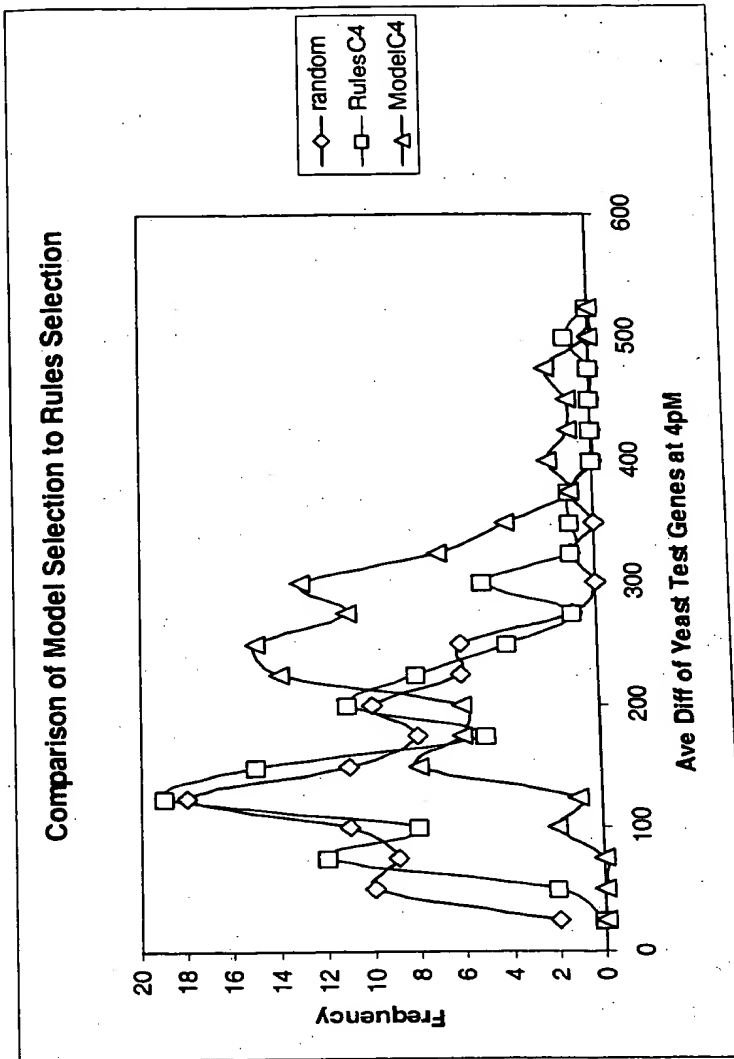


Figure 28